

Electrochemical methods for synthesis of organoelement compounds and functional materials

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Abstract

© 2017 IUPAC & De Gruyter. The new efficient and environmentally safe methods for preparation of various classes of organic and organoelement compounds, including organonickel sigma-complexes and organophosphorus compounds bearing P-C bonds have been created using the electrochemical methods. The synthetic application of the elaborated techniques towards the process of formation of new carbon-carbon, carbon-metal and carbon-phosphorus bonds are discussed. The mechanisms of the proposed processes and the nature of the formed in the overall electrochemical process intermediates are disclosed. The elaborated methods operated in the principals of "green chemistry" can be considered as an efficient alternative to some classical methods for preparation of active catalysts, biologically active molecules and new polynuclear complexes displaying practically useful properties.

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Keywords

catalysis, cyclic voltammetry, electrochemical activation, electrochemistry, electrosynthesis, high-reactive intermediates, macroscale electrolysis, magnetic properties, Mendeleev XX, oligomerisation, organometallic sigma-complexes, organonickel sigma-complexes, organophosphorus compounds

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